



DEPARTMENT OF CHEMISTRY
ASSAM UNIVERSITY, SILCHAR
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NOTICE INVITING TENDERS

No: AU/Chem/34-FIST/12

Date: 06-10-2016

Sealed tenders are invited from Manufacturers/Authorized Dealers having PAN for urgent supply and installation of the following item for the Department of Chemistry, Assam University, Silchar. The quotation should be submitted in a sealed envelope superscripted as "TENDER FOR POWDER XRD IN THE DEPARTMENT OF CHEMISTRY" addressed to *The Head, Department of Chemistry, Assam University, Silchar - 788 011, Assam.*

SN	Particulars of the item	Quantity
1	Powder X-ray Diffractometer (General Specification in Annexure I)	One
2	10 kVA On-Line UPS Three phase out (minimum 30 min backup at full capacity)	One

Important Information

1. Last date & time of submission: **27-10-2016, 12:00 Noon**
2. Date & time of opening of quotation: **27-10-2016, 2:00 PM**
3. Type of bid: **Two Bid system** (Specification and Price)
4. Terms of accomplishment of order: 1 month.
5. In case of any modification in specifications / terms and conditions / any clarification to the bid document, it will be hosted in the university website only and the bidders are requested to log in to our website from time to time and no separate notification/corrigendum will be issued in this regard.
6. **The price should include delivery and installation at the Department of Chemistry, Assam University, Silchar.**
7. The rate should be exclusive of taxes and applicable taxes should be clearly indicated.
8. The rates should be quoted along with supporting documents of specifications, technical features, list of users, catalogues and authorized dealership documents (if applicable).
9. Details of availability of after sales support will have to be furnished.
10. Special discount/rebate admissible to Educational Institution/Central University may be specifically indicated in the quotation
11. The university is exempted from paying Customs and Excise duty.
12. After completion of the supply and installation, the firm will submit bills in triplicate for payment, with a certificate of successful installation of the materials from the Head of Department, Department of Chemistry, Assam University, Silchar
13. Tenders not conforming to the terms and conditions and procedure so outlined are liable to be rejected summarily. The specifications mentioned are the minimum.
14. The University reserves the right to reject any, in part or all tender without assigning any reasons thereof.
15. All terms and conditions will be as per Assam University rules, regulations and decisions.

Head,
Department of Chemistry

Annexure I

Powder XRD Technical Specifications

1. HARDWARE

1.1 Goniometer

Min step size	0.0001 ⁰ or better.
Accuracy	0.005 ⁰ or better
Reproducibility	0.0002 ⁰ or better
2 theta measurement range	-3 to 150 deg or better
Operation mode	Theta - Theta
Goniometer radius	285mm or better
Data quality guarantee	Manufacturer must submit data quality guarantee certificate from the factory on the angular position (≤ 0.01 deg 2theta over the entire angular range) to be carried out on NIST sample. The same NIST sample should be in the scope of supply for evaluation. The supplier must provide an instrument alignment guarantee for selected configurations.

1.2 X-Ray Generator

Power	3 KW or higher
Input voltage range	200 – 240 V
Frequency	50 Hz +/- 1%
Stability for 10% input voltage variation	$\pm 0.01\%$ or better
Cooling	Air / water cooled

1.3 X-Ray Tube

Insulation	Ceramic
Anode material	Cu
Focus	Long Fine focus

1.4 Optic System

All of the Divergence, Antiscatter and Receiving slits should be automatic, variable computer-controlled , capable to work both in Variable mode and in Fixed Mode. Complete alignment process should be automatic and computerised without the need of manual intervention. User selectable easy change over from Bragg-Brentano to Parallel Beam Optics should be available.

1.5 Detector

Operation mode	High speed maintenance free detector; 0D & 1D mode should be possible. The Detector should not use any external cooling or gas for operation.
Efficiency	95% (for Cu radiation) or better
Spatial resolution	75 micrometer or better
Maximum counts	50,000,000 counts or better.
Fluorescence suppression	Suitable hardware/software for suppressing secondary fluorescence.

1.6 Sample Stage: Standard sample stage. Should support analysis at non-ambient temperature.

2. OPTIONAL ATTACHMENTS:

2.1 Capillary attachment should be offered as option

2.2 High Temperature Attachment: Suitable High temperature attachments for ambient to 300 degree C and ambient to 1500 degree C are to be offered as options.

2.3 Attachments for SAXS Unit for Particle and Pore Size Distribution of both solid & liquid samples with measuring range from 0.1 to 5^o to be offered as option.

3. SOFTWARE

Latest software packages (running under latest Windows OS) should be provided with to control all instrument parameters, for Solving analytical tasks. Easy simulation and automatic refinement / smoothening of measured data. Peak search, integrated intensity, K alpha1 and k alpha 2 separation.

Search Match	Search match software to be offered.
Database	ICDD database PDF2 & ICSD database to be offered in option.
Rietveld	Rietveld based standard less quantification, refinement package with ab initio structure analysis, profile fitting, lattice parameter refinement, indexing, crystallite size determination, structure viewer software package should be offered. Facility to determine accurate quantitative analysis of phase with no known crystal structure as well as amorphous material should be available.

4. ACCESSORIES

4.1 Computer & Printer: Suitable computer (with pre-loaded software) and printer must be offered.

4.2 Water Chiller: Suitable water chiller for the system if required should be offered. If external chiller offered the same should be capable to work in ambient temperature of 40 degree Centigrade.

4.3 UPS: Suitable UPS and other necessary components as per requirement for the whole system including chiller with at least 30min backup should be offered as option.

4.5 Spares: Spare Parts Kit, if any, should include sufficient for 2 years operation. Commitments to supply spares for at least 10 years to be ensured.

5. SAFETY

The XRD system must be fully radiation protected as per the international radiation safety norms. The system must have in-built protection against any abnormality like, over load, line current, abnormal voltage, cooling system etc. It should completely shut off if any fail safe devices get tripped or fail to operate.

The offered XRD system must comply with the requirements of the Machinery Directive 2006/42/EC for European Manufacturer or equivalent norm for non European Manufacturer. The system must display an up-to-date CE marking, accompanied by a correct EC Declaration of Conformity as well as all required documentation.

6. INSTALLATION AND COMMISSIONING:

The instrument to be installed, tested and commissioned by the supplier at premises to the satisfaction of user.

Product support for period of minimum five years after warranty period to be ensured by vendor/supplier.

Relevant software/hardware information in case of updating of the model of the supplied system should be provided.

7. TRAINING:

The supplier should provide the training on the site of installation.